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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,471	03/16/2001	Dieter Keller	5029-30 PUS	2528

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EXAMINER
FONTAINE, MONICA A

ART UNIT	PAPER NUMBER
1732	5

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

mk-5

Office Action Summary	Application N .	Applicant(s)	
	09/787,471	KELLER, DIETER	
	Examiner	Art Unit	
	Monica A Fontaine	1732	

-- The MAILING DATE of this communication appears on the c ver sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) 17-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 17-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 16 March 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 27-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 recites the limitation "the mold" in regards to a mold defined at least partially by a plate having a negative form of the molded part to be produced. There is insufficient antecedent basis for this limitation in the claim.

Claims 28-32 are rejected as being dependent on Claim 27.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Berghoff (U.S. Patent 6,254,378). Berghoff shows the apparatus as claimed, including a mold including first and second plates having opposing end faces defining a mold parting plane for opening and closing the mold (Column 2, lines 13-14), opposing end faces having a first negative form of a molded part to be produced (Column 2, line 6), and a gate through which a molding composition is introducible (Column 2, lines 9-11). Furthermore, Berghoff shows an apparatus having a first threaded screw drive connected to one of the first and second plates including a threaded screw drive (Column 2, lines 60-64), a gear mechanism connected to said threaded screw drive, and a controlled drive operatively connected to said threaded screw drive via said gear mechanism (Column 4, lines 58-65).

Claim 27 is rejected under 35 U.S.C. 102(e) as being anticipated by Berghoff. Berghoff shows the process as claimed, including injection molding a composition into a cavity of a mold defined at least partially by a plate having a negative form of the molded

part to be produced (Column 2, lines 6, 13-14). Furthermore, Berghoff shows a process during which a plate of the mold is moved by a threaded screw drive (Column 2, lines 60-64), and the movement of the plate is controlled (Column 3, lines 34-42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Inaba et al. (U.S. Patent 5,052,908), in further view of Wakebe et al. (U.S. Patent 5,310,331). Berghoff shows the apparatus as claimed as discussed above, but does not disclose a first screw drive comprising a plurality of screw drive assemblies. Inaba et al., hereafter "Inaba," show that it is known in an injection molding apparatus to include a first threaded screw drive assembly with one screw (Column 4, lines 46-62) connected to one of the first and second plates. Wakebe et al., hereafter "Wakebe," show that it is known in an injection molding apparatus to operate more than one screw assembly with one screw drive (Column 5, lines 7-20). The examiner notes that although the plurality of screws are not attached to one of the first and second plates, the concept of operating a plurality of screws with one screw drive is hereby known. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Inaba's screw drive assembly and Wakebe's plurality of screws into Berghoff's molding apparatus in order to ensure the most effective mold compression possible.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Langos et al. (U.S. Patent 5,975,881). Berghoff shows the apparatus as claimed as discussed above, but he does not show the use of a second threaded drive screw assembly. Langos et al., hereafter "Langos," show that it is known in a molding apparatus to have two separate drive units, one for operating the first plate and the other for operating the second plate (Column 2, lines 8-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Langos' two drive units in Berghoff's molding apparatus in order to achieve better mold compression than with just one drive unit.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Hehl (U.S. Patent 5,622,737). Berghoff shows the apparatus as claimed as discussed above, but does not show the use of a spindle or a spindle nut. Hehl teaches that it is known in an injection molding apparatus to include (Claim 21) a spindle (Column 6, line 3) and (Claim 20) a nut (Column 6, line 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Hehl's spindle and nut in Berghoff's molding apparatus in order to create the most efficient injection molding apparatus.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Starkey (U.S. Patent 5,882,695), in further view of Langos. Berghoff shows the apparatus as claimed as discussed above, but does not show the use of a mold insert. Starkey teaches that it is known to use an insert arranged between in the first and second plates (Column 9, lines 28-38) in an injection molding apparatus. Starkey provides a mechanism for removal of the said insert, but it is not a screw drive assembly. Recall

that Langos shows that it is known to have two separate drive units, one for operating the first plate and the other for operating the second plate (Column 2, lines 8-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Starkey's insert with Langos' removal mechanism in Berghoff's molding apparatus to increase the possible functions of the machine.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Inaba et al. (U.S. Patent 4,929,165). Berghoff shows the apparatus as claimed as discussed above, but does not show connecting the threaded screw drive to the die. Inaba et al., hereafter "Inaba," show that it is known in an injection molding apparatus to connect the threaded screw drive to the die (Column 3, lines 62-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Inaba's connected threaded screw drive to the die of Berghoff's molding apparatus in order to ensure proper movement of the die.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Brun et al. (U.S. Patent 4,497,624). Berghoff shows the apparatus as claimed as discussed above, but does not show the inclusion of heating elements in the first and second plates. Brun et al., hereafter "Brun," show that it is known to include heating elements in a plate of an injection molding apparatus (Column 1, lines 46-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Brun's heating elements in both of the plates of Berghoff's invention in order to supply more evenly-distributed heat to the mold.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Aoki (U.S. Patent 3,712,786). Berghoff shows the apparatus as

claimed, as discussed above, but does not show the inclusion of a planetary gear mechanism or the inclusion of an ejector in the drive assembly. Regarding Claim 25, Aoki shows that it is known in an injection molding apparatus to include a planetary gear mechanism to drive a threaded core assembly (Column 2, lines 11-23; Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Aoki's planetary gear mechanism in Berghoff's molding apparatus in order to increase the overall efficiency of the machine. Regarding Claim 26, Aoki shows that it is known in an injection molding apparatus to include at least one ejector arranged in a threaded screw drive assembly (Column 2, lines 61-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include Aoki's ejector in the drive assembly of Berghoff in order to simplify product removal from Berghoff's machine.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Ten Vaarwek (U.S. Patent 5,328,347). Berghoff shows the process as claimed as discussed above, but does not show the movement of the plate depending on pressure in the mold. Ten Vaarwek shows that it is known in injection molding to sense the pressure inside the mold and control the movement of the plates of the mold relative to the sensed pressure (Column 9, lines 7-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the value obtained by Ten Vaarwek's pressure sensor to control the movement of the plates in Berghoff's injection molding process in order to promote efficient control of the molding operation.

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of McNally (U.S. Patent 6,206,676). Berghoff shows the process as

claimed as discussed above, but does not show the use of power consumption of the driving motor or force on the driving motor to control the plate movement. McNally teaches that it is known in a molding process to control the positioning of the mold plates per appropriate programming of the overall drive system (Column 9, lines 26-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use McNally's programming of the drive system to control the movement of the mold plates in Berghoff's injection molding method by monitoring (Claim 29) the power consumption of the drive motor and (Claim 30) the force on the drive motor as two parameters to control in order to make use of a readily-available system parameter that can be related to plate movement.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berghoff, in view of Laing et al. (U.S. Patent 5,800,750). Berghoff shows the process as claimed as discussed above, but does not show the movement of the plates in step-by-step fashion in increments of 1 micrometer. Regarding Claim 32, Laing et al., hereafter "Laing," show that it is known in injection molding to monitor the movement of the mold plates in an incremental fashion (Column 6, lines 64-67). It is noted that although Laing refers to increments of time, it can be assumed that increments of length, as instantly claimed, would lead to analogous conclusions about mold plate movement. Regarding Claim 33, Laing shows that it is known in injection molding to monitor the movement of the mold plates in an overall step-by-step pattern (Column 7, lines 1-8; Figure 10B). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Laing's monitoring patterns and increments to control mold plate movement

in Berghoff's injection molding process in order to obtain a practically continuous analysis of mold plate movement.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with regards to mold closing apparatuses and processes:

U.S. Patent 6,093,361 to Schad

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A Fontaine whose telephone number is 703-305-7239. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan Silbaugh can be reached on 703-308-3829. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9310 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

maf
November 25, 2002

JAN H. SILBAUGH
SUPERVISORY PATENT EXAMINER
ART UNIT 1732

11/25/02